IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

RUOEY LUNG ENTERPRISE CORP., Plaintiff, v. TEMPUR-PEDIC, INTERNATIONAL INC.; TEMPUR-PEDIC SALES, INC.; TEMPUR-PEDIC NORTH AMERICA LLC; OPTIMA HEALTHCARE, INC.; and APEX HEALTH CARE MANUFACTURING, INC., Defendants.	**Civil Action No. 09-CV-11550-GAO**
ASCION, LLC and MARTIN RAWLS-MEEHAN, Plaintiffs, v. RUOEY LUNG ENTERPRISE CORP. and LUNG-TAN SHIH, Defendants.	Civil Action No. 09-CV-10293-WGY Consolidated with the above action

DECLARATION OF DR. JEFFREY L. STEIN
IN SUPPORT OF DEFENDANTS' MOTION
FOR SUMMARY JUDGMENT OF INVALIDITY

I, Jeffrey L. Stein, Ph.D., declare as follows:

1. I am a tenured professor of Mechanical Engineering at the University of Michigan in Ann Arbor, Michigan. I joined the University of Michigan in 1983 as an Assistant Professor in the Department of Mechanical Engineering and Applied Mechanics. I became an Associate

Professor in 1988 and a full Professor in 1996 in the Department of Mechanical Engineering, which is the position I currently hold.

2. I also am the Principal Investigator of a $2 million grant from the National Science Foundation Emerging Frontier Research Initiative on the Resilience and Sustainability of Coupled Infrastructures. This grant focuses on the development of tools for designing plug-in hybrid vehicles subject to the resilience and sustainability of the transportation and electric power infrastructures.

3. I have been teaching and doing research at the University of Michigan since 1983 in the areas of design, systems and control as applied to automotive engineering, manufacturing and biomechanics. I have published over 160 articles, many in the areas of control engineering, design engineering, automotive engineering, and manufacturing engineering.

4. I am a registered Professional Engineer in the State of Michigan. I am also a member of several professional engineering organizations, including the Society of Automotive Engineers, the National Society of Professional Engineers, the American Society of Mechanical Engineers (ASME), the Society of Manufacturing Engineers, and the American Society for Engineering Education.

5. I am the recipient of many honors and awards including: ASME Fellow, ASME Dedicated Service Award, and the Presidential Young Investigator Award, National Science Foundation.

6. I have been retained by Defendants to provide my expert opinion in this case. The analysis and opinions that I provide in this declaration are based on the facts as I currently understand them. I reserve the right to revise my analysis and my opinions, especially for purposes of my anticipated expert report., if I learn additional information.

Overview of the '100 Patent

7. I understand that Plaintiff Ruoey Lung Enterprise Corp. ("Ruoey Lung") asserts U.S. Patent No. 7,448,100 (the '100 Patent) against Defendants Tempur-Pedic International, Inc., Tempur-Pedic Sales, Inc., Tempur-Pedic North America LLC, Optima Healthcare, Inc., Apex Health Care Manufacturing, Inc., Ascion, LLC and Martin Rawls-Meehan in this case (collectively "Defendants"). I have reviewed the '100 Patent and its prosecution history.

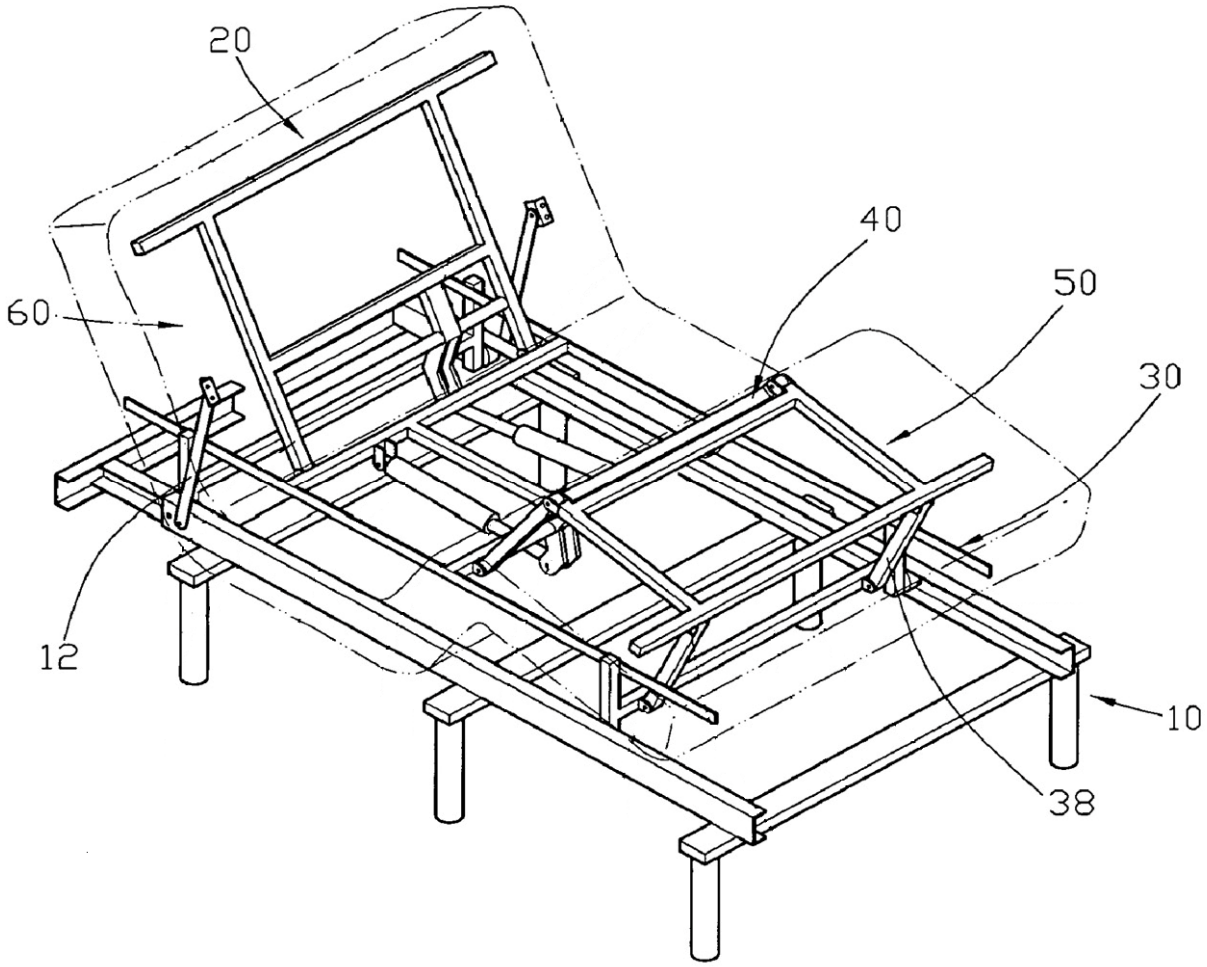
8. The '100 Patent claims a particular type of motorized bed that is movably closer to a wall (i.e., the bed can be adjusted to move the mattress – and the person lying on it – closer to the wall behind it when in a sitting position). The '100 Patent has three independent claims: Claims 1, 14, & 18. All of these claims, as well as their dependents, require the motorized beds to include a frame (made up of an adjustable bed frame and a stationary base frame) and a cushion (i.e., mattress). The mattress is mounted to the adjustable bed frame and the underlying structure of that skeletal frame provides the mattress with its underlying shape and support.

9. Each of the '100 Patent's 18 claims has eight core elements:

1) a base frame;
2) a linking frame movably mounted on the base frame;
3) a first support frame pivotally mounted on the linking frame;
4) two first links each pivotally mounted between the base frame and the first support frame;
5) a second support frame pivotally mounted on the linking frame;
6) a lift frame pivotally mounted on the second support frame;
7) two second links each pivotally mounted between the linking frame and the lift frame; and

8) a cushion mounted on the linking frame and having a first portion mounted on the first support frame to move therewith and a second portion mounted on the second support frame and the lift frame to move therewith.

10. The ’100 Patent provides figures depicting the various frames and links described in the eight core elements. For example, Figure 6 depicts a base frame (10), linking frame (30), first support frame (20), two first links (12), second support frame (40), lift frame (50), two second links (38), and cushion (60).



11. The ’100 Patent describes four objectives of the invention. First, “to provide a motorized bed that is movably closer to the wall.” Second, by moving closer to a wall, the

adjustable bed enables the user to more easily and conveniently reach bedside items in an energy-saving manner. Third, the bed can be adjusted to elevate and support the user's legs, "thereby providing a comfortable sensation to the user." Fourth, two motorized drive cylinders enable the user to operate the bed "easily and quickly in an energy-saving manner."

12. None of the '100 Patent's four objectives are novel. As described more fully below, the first two objectives, common to all "wall hugging" beds, have been around since these types of beds were developed in the 1990s. The third objective, elevating legs to improve patient comfort, has been an object of adjustable beds for more than a century. Finally, inventors have been using motors in adjustable beds for more than a half century. Given the decades-old objectives recited in the '100 Patent and the use of well-known solutions to address these routine problems, it is unclear what inventive contribution, if any, the '100 Patent provides to the state of the art.

Overview of the Prior Art

13. Adjustable beds have been around for more than a century. See U.S. Patent No. 681,186 (filed October 20, 1900). For decades, hospitals have used motorized adjustable beds. See, e.g., U.S. Patent No. 2,500,742 (filed July 30, 1945).

14. More recently, since at least the 1990s, "wall hugging" adjustable beds have been known in the art. See, e.g., U.S. Patent No. 5,577,280 (filed March 15, 1995). Wall hugging beds permit the user to remain in the same position with respect to adjacent furniture even as the head portion of the bed is elevated, thereby giving the user convenient access to bedside items.

15. One example of a wall hugging bed in the prior art is U.S. Patent No. 6,101,647 ("Stroud") (filed March 10, 1998). As depicted in Figure 2 of Stroud, the frames resemble those of the '100 Patent.

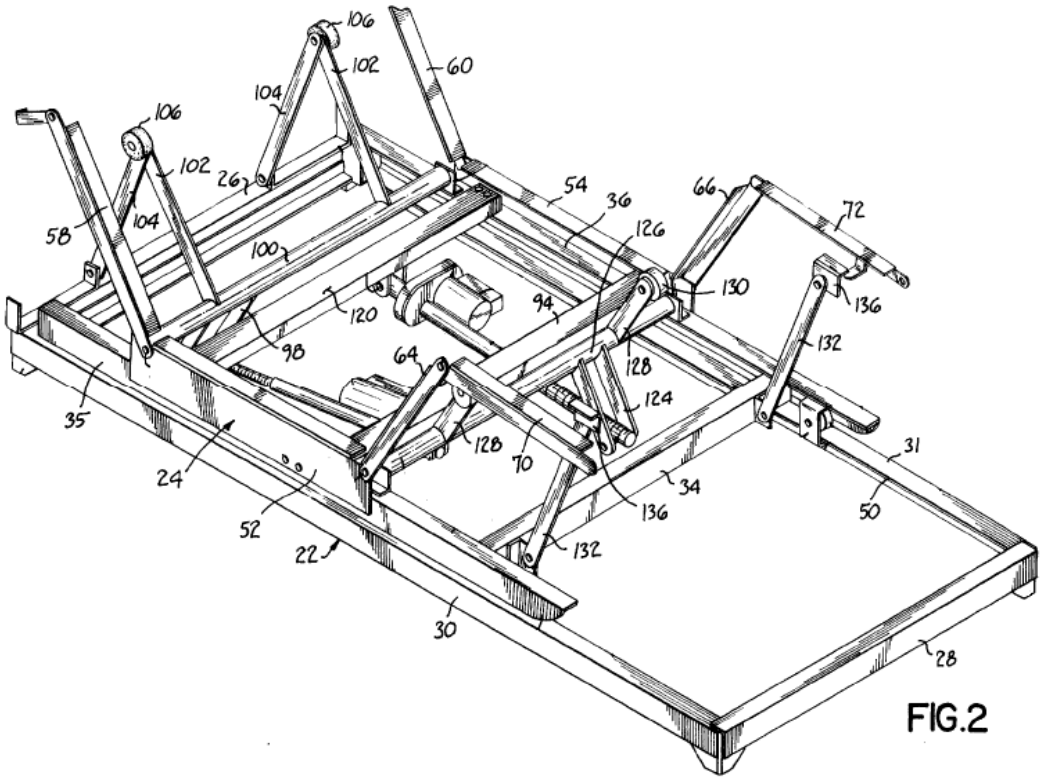


FIG.2

16. In my opinion, for the reasons set forth in detail below, Stroud describes each and every element of Claims 1-11, 14, 15 and 18 of the ‘100 Patent. Though I address each of the limitations of the individual claims in greater detail below, it is useful at the outset to provide a simple correlation of the eight core elements, which are identified in Figure 6 of the ’100 Patent with corresponding elements in Figure 2 of Stroud, with the exception of a cushion.

	Core elements of ’100 Patent	**Stroud element number and nomenclature**
1	base frame (10)	rails (26, 28, 30, 31) are the lower frame (22)
2	linking frame (30)	rails (33-36), center hinges (52, 54), and the motor mount rails (94, 120) are the upper frame (24)
3	first support frame (20)	head hinges (58, 60), crank arm links (98), actuator shaft (100), lift arms (102), lift rollers (106)
4	two first links (12)	head arm links (104)
5	second support frame (40)	thigh hinges (64, 66), crank arm links (124), foot actuator shaft (126), foot lift arms (128), foot lift rollers (130)
6	lift frame (50)	foot hinges (70, 72) and brackets (136)
7	two second links (38)	foot support arms (132)

8	cushion (60)	mattress (86) (pictured elsewhere)

17. Another example of a wall hugging bed in the prior art is U.S. Patent No. 6,006,379 ("Hensley") (effective filing August 4, 1997). As depicted in Figure 5 of Hensley, the frames resemble those of the '100 Patent.

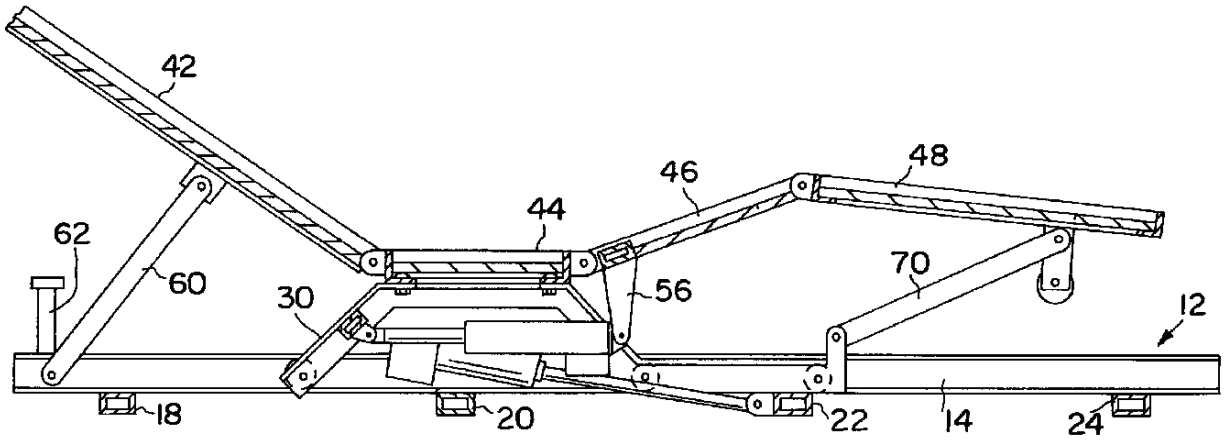


FIG. 5

18. In my opinion, for the reasons set forth in detail below, Hensley describes each and every element of Claims 1 and 5-18 of the '100 Patent. As with Stroud, the eight core elements of the '100 Patent can be readily correlated with corresponding elements in Figure 1 of Hensley. Note cushion is pictured elsewhere.

Core elements of '100 Patent	**Corresponding Hensley elements**
base frame (10)	base frame (12) including (14, 16, 18, 20, 22, 24, and 62)
linking frame (30)	carriage (30) and seat frame section (44) together
first support frame (20)	upper body frame section (42)
two first links (12)	links (60)
second support frame (40)	thigh frame section (46), bracket (56)
lift frame (50)	lower leg frame section (48)
two second links (38)	links (70)
cushion (60)	mattress (500) (pictured elsewhere)

19. I have reviewed the Court's claim construction order, D.I. 54, entered in this case and apply the Court's constructions in my analysis.

Detailed Analysis of the '100 Patent and the Prior Art

20. Each of the 18 claims in the '100 Patent contains elements in addition to the eight core elements described above.

Claim 1

21. As summarized in the table below, Stroud and Hensley describe the first element of Claim 1: a motorized bed, comprising: a base frame.

Claim[1]	'100 Patent element	Stroud corresponding element	Hensley corresponding element
1.1	a base frame (10)	lower frame (22)	base frame (12)

22. Stroud and Hensley describe the second element of Claim 1: a linking frame movably mounted on the base frame.

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
1.2	a linking frame (30)	upper frame (24)	carriage (30) and seat frame section (44) together
	movably mounted on	movably mounted on	having rollers (32) for rectilinear movement and mounted on
	the base frame (10)	lower frame (22)	base frame (12)

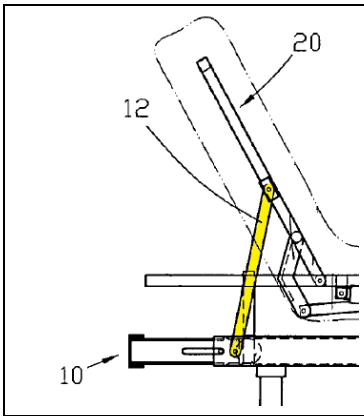
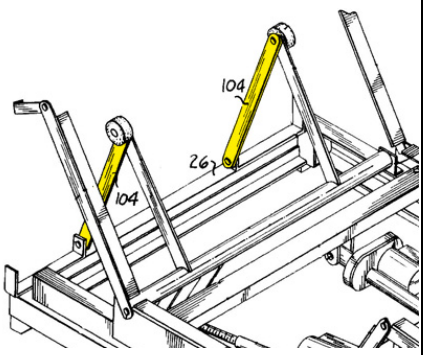
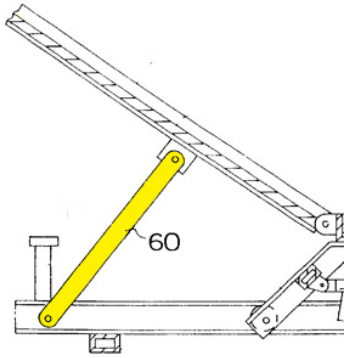
23. Stroud and Hensley describe the third element of Claim 1: a first support frame pivotally mounted on the linking frame.

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
1.3	a first support frame (20)	head hinges (58, 60), crank arm links (98),	upper body frame section (42)

[1] For convenience and clarity, I have designated elements within a claim by using decimals, e.g., 1.1 refers to the first element of Claim 1.

		actuator shaft (100), lift arms (102), lift rollers (106)	
	pivotally mounted on	pivotally connected to	pivots upward from
	the linking frame (30)	center hinges (52, 54) a part of the "linking frame"	seat frame (44) (which is bolted to carriage (30))

24. Stroud and Hensley describe the fourth element of Claim 1: two first links each pivotally mounted between the base frame and the first support frame. The links in Stroud consist of head arms (104) which connect the lower frame (22) with lift arms (102), as depicted in the portion of Stroud Figure 2 included below.

		
'100 Patent, Fig. 7	**Stroud, Fig. 2**	**Hensley, Fig. 5**

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
1.4	two first links (12)	head arms links (104)	links (60)
	each pivotally mounted between the base frame (10) and	are pivotally connected to head rail (26) of lower frame (22) and	connect side rails (14, 16) of base frame (12) to
	the first support frame (20)	lift arms (102) are also rotatably connected to head arm links (104)	upper body frame section (42)

25. Stroud and Hensley describe the fifth element of Claim 1: a second support frame pivotally mounted on the linking frame.

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
1.5	a second support frame (40)	the thigh hinges (64, 66) of Stroud's "second support frame"	thigh frame section (46)
	pivotally mounted on	pivotally connected to	pivots upward from
	the linking frame (30)	center hinges (52, 54)	seat frame section (44) which is bolted to the carriage (30)

26. Stroud and Hensley describe the sixth element of Claim 1: a lift frame pivotally mounted on the second support frame.

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
1.6	a lift frame (50)	foot hinges (70, 72)	lower leg frame section (48)
	pivotally mounted on	pivotally connected to	pivots downward
	the second support frame (40)	thigh hinges (64, 66)	when thigh frame section (46) pivots upward

27. Stroud and Hensley describe the seventh element of Claim 1: two second links each pivotally mounted between the linking frame and the lift frame.

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
1.7	two second links (38)	foot support arms (132)	links (70)
	each pivotally mounted	pivotally connected to	pivotally connected to
	between the linking frame (30) and	foot end rail (34) and also connected to	carriage (30) (which is bolted to seat frame section (44)) and also pivotally connected to
	the lift frame (50)	brackets (136)	lower leg frame section (48)

28. Stroud and Hensley describe the eighth element of Claim 1: a cushion mounted on the linking frame and having a first portion mounted on the first support frame to move therewith and a second portion mounted on the second support frame and the lift frame to move therewith. In Stroud, a mattress (86) is laid over a mattress base (84), which is mounted over support boards (76, 78, 80, 82) which are themselves fastened to the Stroud hinges corresponding to the '100

Patent's frames. In Hensley, a mattress (500) is expressly described in Figure 14 as lying on an articulating upper deck (540) and frame combination. (The specification in Hensley states that Figure 14 describes the "present invention" (Col. 9, lns. 1-2) indicating the description of the mattress applies to all embodiments.) If the Court finds that an adjustable bed with a mattress merely lying on top of the adjustable frame parts is "mounted" to the "linking frame" for purposes of infringement, than the Stroud and Hensley mattresses are similarly "mounted," and would therefore disclose the same limitations of the '100 Patent.

Claim	**'100 Patent element**	**Stroud corresponding element**	**Hensley corresponding element**
1.8	a cushion (60)	mattress (86)	mattress (500)
	mounted on	laid over	lies on
	the linking frame (30)	mattress base (84) which is mounted over center support board (78) which is fastened to center hinges (52, 54)	articulating upper frame (40) (including seat frame section (44)) which is mounted on carriage (30)
	and having a first portion mounted on the first support frame (20) to move therewith and	and mattress base (84) is also mounted over head support board (76) which is fastened to head hinges (58, 60) and	and mattress (500) also lies on upper body frame section (42) such that the mattress moves with the frame section and
	a second portion mounted on the second support frame (40) and the lift frame (50) to move therewith	mattress base (84) is also mounted over thigh support board (80) and foot support board (82) which are fastened to thigh hinges (64, 66) and foot hinges (70, 72), respectively	mattress (500) also lies on thigh frame section (46) and lower leg frame section (48) such that the mattress moves with the frame sections

29. Stroud and Hensley describe the ninth element of Claim 1: wherein the linking frame has a mediate portion provided with a support bracket. The support bracket (31) in the '100 Patent consists of multiple members. Similarly, the elements in Stroud and Hensley

corresponding to the '100 Patent's support bracket include several members. In Stroud, the support bracket includes the center hinges (52, 54) and the motor mount cross rails (94, 120). In Hensley, the support bracket includes all components of the seat frame and the transverse strut member (unnumbered) of the carriage (30).

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
1.9	the linking frame (30)	upper frame side rails (35, 36)	carriage (30) and seat frame section (44)
	has a mediate portion provided with a support bracket (31)	have attached to them center hinges (52, 54) and motor mount cross rails (94, 120)	the seat frame section (44) and the transverse strut member (unnumbered) of the carriage (30) constitute the mediate portion with a support bracket

30. Stroud and Hensley describe the tenth element of Claim 1: the first support frame has a first portion pivotally mounted on the support bracket of the linking frame and a second portion provided with a resting bar rested on the cushion. While both references disclose an upright frame pivoting on a seat frame, neither disclose a "bar rested on the cushion" unless a peculiar definition of "rested on" is adopted. That is, neither reference discloses a bar lying on top of a mattress, which is not surprising since such an uncomfortable arrangement would prevent using the bed for sleeping. However, Stroud and Hensley both disclose elements on which a cushion rests. Thus, if the Court finds that the limitation a "bar rested on the cushion" can be met by an adjustable bed where the cushion lies on the bar, than Hensley and Stroud would likewise disclose this limitation.

Claim	'100 Patent element	Stroud corresponding	Hensley corresponding

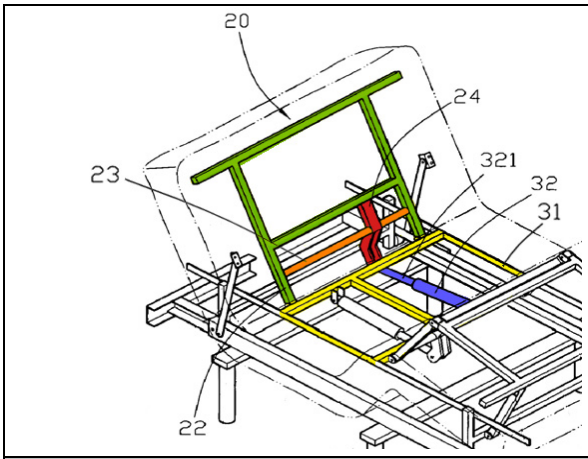
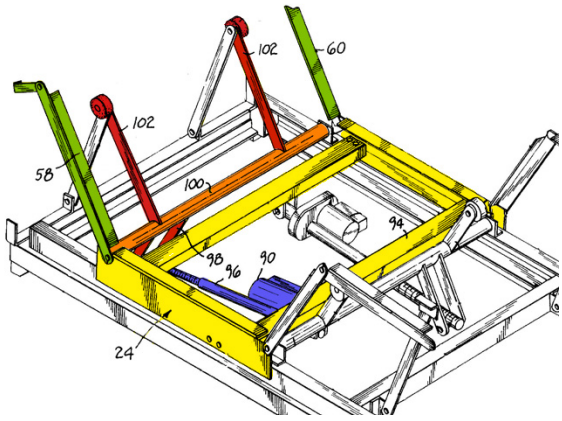
		element	element
1.10	the first support frame (20) has a first portion (22)	head hinges (58, 60)	upper body frame section (42) with two lower longitudinally extending arms that constitute the "first portion"
	pivotally mounted on	pivotally connected to	pivots upwardly from
	the support bracket (31) of the linking frame (30)	center hinges (52, 54) of upper frame (24)	seat frame (44) which is bolted to carriage (30)
	and [the first support frame (20) has] a second portion provided with a resting bar (21)	the "second portion" is the actuator bar (100), the lift arms (102), and the lift rollers (106); the combination of lift arms (102) and the lift rollers (106) constitute "resting bars"	the upper portion of the upper body frame section (42) is the "second portion" with a "resting bar"
	rested on the cushion (60)	and the lift arms (102) and the lift rollers (106) press against head board (76) to which mattress base (84) is mounted and over which mattress (86) is laid	on which mattress (500) lies

Claims Depending from Claim 1

31. All remaining claims share certain elements in common with Claim 1. Only the unique elements of the remaining claims are analyzed to avoid redundancy.

32. Stroud describes the first unique element of Claim 2: wherein the first support frame has a mediate portion provided with a transverse rod and a pivot arm having a first portion secured to the transverse rod. In the figures below, portions of the first support bracket are colored green, red and orange; portions of the support bracket are colored yellow. The '100 Patent's transverse rod (23, orange) corresponds to the Stroud actuator bar (100). Further, the '100 Patent's pivot arm (24, red) corresponds to Stroud's lift arms (102) and crank arm links

(98), which rotate with the actuator bar just as the ’100 Patent’s pivot arm rotates with the transverse rod.

	
’100 Patent	**Stroud**

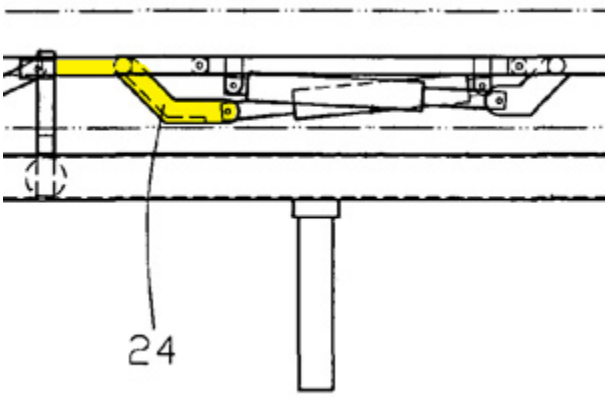
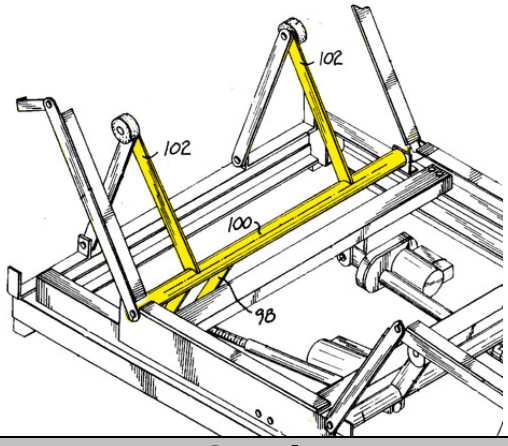
Claim	’100 Patent element	Stroud corresponding element
2.1	the first support frame (20) has a mediate portion provided with a transverse rod (23) and	located between head hinges (58, 60) are lift arms (102), which are connected to head actuator shaft (100) and
	a pivot arm (24) having a first portion secured to the transverse rod (23)	crank arm links (98) and lift arms (102) are rigidly connected to head actuator shaft (100)

33. Stroud describes the second unique element of Claim 2: and the motorized bed further comprises a drive cylinder mounted between the linking frame and the first support frame and having a first portion pivotally mounted on the support bracket of the linking frame and a second portion provided with a retractable rod pivotally mounted on a second portion of the pivot arm of the first support frame. As depicted in the color-coded figures above, the ’100 Patent’s blue drive cylinder (32) and retractable rod (321) correspond to the Stroud head motor (90) and drive shaft (96). In both, the drive cylinder / motor is mounted between the support bracket (yellow) (31) and pivot arm (red).

Claim	’100 Patent element	Stroud corresponding element

2.2	the motorized bed further comprises a drive cylinder (32)	adjustable bed has head motor (90)
	mounted between the linking frame (30) and the first support frame (20) and	mounted between upper frame (24) and crank arm links (98) by drive shaft (96)
	[the drive cylinder (32)] having a first portion pivotally mounted on the support bracket (31) of the linking frame (30) a	head motor (90) is pivotally mounted to trunnion motor mount (92), which is attached to head motor mount rail (94), which is connected to side rails (35, 36)
	and [drive cylinder (32) has] a second portion provided with a retractable rod (321)	head motor (90) has drive shaft (96)
	pivotally mounted on a second portion of the pivot arm (24) of the first support frame (20)	distal end of drive shaft (96) is pivotally connected to crank arm links (98) which are rigidly connected to head actuator shaft (100), to which lift arms (102) are also rigidly connected

34. Stroud describes the first unique element of Claim 3 (which depends from Claim 2): wherein the pivot arm of the first support frame is substantially V-shaped. When viewed from the side (i.e., down the end of transverse rod), the ’100 Patent’s pivot arm (24), forms a substantially V-shaped obtuse angle, with transverse rod (23) passing through the apex of the “V”. Similarly, the head lift arm (102) forms an obtuse angle with crank arm links (98), with actuator shaft (100) passing through the apex of the “V”, as depicted below in Stroud Figure 2.

	
’100 Patent	**Stroud**

Claim	'100 Patent element	Stroud corresponding element
3	the pivot arm (24) of the first support frame (20) is substantially V-shaped	head lift arm (102) and crank arm links (98) form a substantially V-shaped obtuse angle about the actuator shaft (100)

35. Stroud describes the first unique element of Claim 4 (which depends from Claim 2): when the retractable rod of the drive cylinder is folded outwardly, the pivot arm of the first support frame is pushed upwardly by the retractable rod of the drive cylinder, so that the first support frame is pivoted upwardly relative to the linking frame, and the cushion is moved upwardly with the first support frame.

Claim	'100 Patent element	Stroud corresponding element
4.1	when the retractable rod (321) of the drive cylinder (32) is folded outwardly, the pivot arm (24) of the first support frame is pushed upwardly by the retractable rod (321) of the drive cylinder (32)	drive shaft (96) extends linearly away from motor (90), moving crank arm links (98) so that head actuator shaft (100) rotates clockwise
	so that the first support frame (20) is pivoted upwardly relative to the linking frame (30) and	and thus head lift arms (102) move clockwise, thereby elevating head lift rollers (106) and head board (76) and
	the cushion (60) is moved upwardly with the first support frame (20)	mattress (86) is laid over head support board (76)

The mechanism of action between the '100 Patent and Stroud with regard to the second element of Claim 4 is identical. In the '100 Patent, the linking frame is moved towards the head of the bed because of the force applied from the first support links (12) on to the cushion[2] and upper frame. This action results a narrowing of the angle formed between the first support links (12) and the cushion (60). Similarly, in Stroud, the upper frame is moved towards the head of

[2] It is impractical that a rigid support link (likely made of metal), which is meant to carry a load and which also has a relatively small cross sectional area, would be used to apply a force to the cushion. The link would simply rip or puncture the cushion. One of ordinary skill would assume that the support link is applying the force to the upper frame upon which the cushion is mounted.

the bed because of the force applied from the head arms links (104) on to the head lift arms (102) and other head frame portions, resulting in a narrowing of the angle formed between the head arm links and the head lift arms, where the head lift arms move together with the mattress (86).

36. Stroud describes the second unique element of Claim 4: when the cushion is moved upwardly with the first support frame, the cushion is driven by the first links to move, and the linking frame is driven by the cushion to move on the base frame.

Claim	'100 Patent element	Stroud corresponding element
4.2	when the cushion (60) is moved upwardly with the first support frame (20), the cushion (60) is driven by the first links (12) to move and	mattress (86) is laid over mattress base (84), which is mounted to head support board (76), which is elevated by head lift rollers (106) when head arm links (104) rotate counterclockwise and
	the linking frame (30) is driven by the cushion (60) to move on the base frame (10)	upper frame (24) is translated toward the head end rail (26) as head lift rollers (106) and head board (76) are elevated; because mattress (86) is laid over head board (76), the two move together

37. Stroud and Hensley describe the first unique element of Claim 5 (which depends from Claim 1): wherein the support bracket of the linking frame is provided with a plurality of pivot seats, and the first portion of the first support frame is pivotally mounted on the support bracket of the linking frame by the respective pivot seats of the linking frame.

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
5	the support bracket (31) of the linking frame (30) is provided with a plurality of pivot seats (34)	center hinges (52, 54) have pivot pins (62)	seat frame section (44) constitutes part of the "support bracket" and it has pivot seats (unnumbered);
	and the first portion (22) of the first	which connect head hinges (58, 60) and	upper body frame section (42)

	support frame (20) is	which are	
	pivotally mounted on	pivotally connected to	pivots upwardly
	the support bracket (31) of the linking frame (30) by the respective pivot seats (34) of the linking frame (30)	center hinges (52, 54) by respective pivot pins (62)	from the pivot seats of the seat frame section (44)

38. Stroud and Hensley describe the first unique element of Claim 6 (which depends from Claim 1): further comprising a motor mounted on the linking frame and located under the cushion. I understand that the parties stipulated that a "motor" in Claim 6 is a "device that provides vibration to the cushion."

Claim	**'100 Patent element**	**Stroud corresponding element**	**Hensley corresponding element**
6	a motor (70) mounted on the linking frame (30)	massage motors (150, 152) are attached on head and foot portions of the frame by means of the respective head and foot boards (76 & 82)	massage units (300, 302) are disclosed; the massage units would necessarily be attached or affixed in some manner to the articulating frame sections to properly apply vibrations to the person laying on the bed
	and located under the cushion (60)	mattress (86) lies on mattress base (84) which is attached to center board (78) as well as on head, thigh and foot boards (76, 80, 82)	mattress (500) lies on articulating upper deck (540)

Dependent Claims 7-13 Largely Mirror Claims 1-6

39. Claims 7-13 are dependent claims that describe limitations concerning the foot end of the frame in contrast to Claims 1-6 which focus on the head end of the bed. The basic difference between the head and foot ends of the bed is that the foot end has two movable frames

– the second support frame and the lift frame – whereas the head end has just one movable frame, the first support frame. Aside from this difference, the limitations in Claims 7 through 13 largely mirror those of Claims 1 through 6, and therefore little explanation is required.

40. Claim 7 (which depends from Claim 1) is very similar to the tenth element of Claim 1, except that it applies to the second support frame and does not include a "resting bar" requirement. Stroud and Hensley describe the first unique element of Claim 7: the second support frame has a first portion pivotally mounted on the support bracket of the linking frame.

Claim	**'100 Patent element**	**Stroud corresponding element**	**Hensley corresponding element**
7	the second support frame (40) has a first portion (41)	crank arm links (124), lift arms (128), lift rollers (130), and thigh hinges (64, 66)	thigh frame section (46) has a section toward the head of the bed, the head end, that
	pivotally mounted on	pivotally connected to	pivots upwardly from
	the support bracket (31) of the linking frame (30)	center hinges (52, 54)	seat frame section (44) which constitutes a part of the "support bracket of the linking frame"

41. The requirements of Claim 8 (which depends from Claim 7) are identical to those of Claim 5, except that they apply to the second support frame. Stroud and Hensley describe the first unique element of Claim 8: wherein the support bracket of the linking frame is provided with a plurality of pivot seats, and the first portion of the second support frame is pivotally mounted on the support bracket of the linking frame by the respective pivot seats of the linking frame.

Claim	**'100 Patent element**	**Stroud corresponding element**	**Hensley corresponding element**
8	the support bracket (31) of the linking frame (30) is provided with a plurality of pivot seats (34) and	center hinges (52, 54) (which are a portion of Stroud's "support bracket") have pivot pins (68)	seat frame section (44) constitutes a part of the "support bracket" and it has pivot seats (unnumbered);

	the first portion (41) of the second support frame (40) is	which connect thigh hinges (64, 66) and which are	the head end of thigh frame section (46)
	pivotally mounted on	pivotally connected to	pivots upwardly
	the support bracket (31) of the linking frame (30) by the respective pivot seats (34) of the linking frame (30)	center hinges (52, 54) by respective pivot pins (68)	from the pivot seats on the seat frame section (44)

42. The requirements of Claim 9 (which depends from Claim 7) are similar to those of Claim 2, except that they apply to the second support frame and there is no transverse bar. Stroud and Hensley describe the first unique element of Claim 9: wherein the second support frame has a second portion provided with a pivot arm.

Claim	**'100 Patent element**	**Stroud corresponding element**	**Hensley corresponding element**
9.1	the second support frame (40) has a second portion (42) provided with a pivot arm (43)	Stroud's "second support frame" includes (among other things) foot crank arm links (124), a foot actuator shaft (126), foot lift arms (128) which constitute the "second portion with a pivot arm"	thigh frame section (46) has a bracket (56) attached

43. Stroud and Hensley describe the second unique element of Claim 9: and the motorized bed further comprises a drive cylinder mounted between the linking frame and the second support frame and having a first portion pivotally mounted on the support bracket of the linking frame and a second portion provided with a retractable rod pivotally mounted on the pivot arm of the second support frame.

Claim	**'100 Patent element**	**Stroud corresponding element**	**Hensley corresponding element**
9.2	the motorized bed further comprises a	adjustable bed has foot motor (116)	bed has second drive system (52)

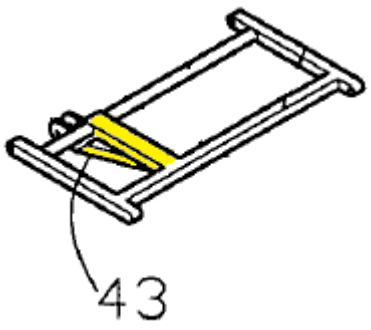
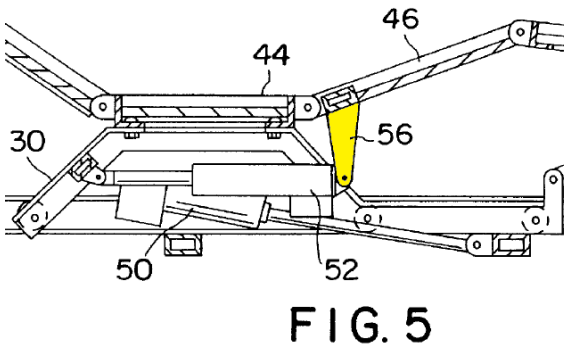
	drive cylinder (32)		
	mounted between the linking frame (30) and the second support frame (40) and	connected to trunnion motor mount (118), which is connected to motor mount rail (120), and drive shaft (122) of foot motor (116) is connected to crank arm links (124) and	connected to the transverse strut member (unnumbered) on the carriage (30) and the bracket (56) which is attached to thigh frame section (46) and
	[the drive cylinder (32)] having a first portion pivotally mounted on the support bracket (31) of the linking frame (30) and	foot motor (116) connected to trunnion motor mount (118), which is connected to motor mount rail (120), which is connected to upper side rails (35, 36) and	drive system (52) has first end (52') which is pivotally connected to transverse strut member of the carriage (30) and
	[the drive cylinder (32) has] a second portion provided with a retractable rod (321)	foot motor (116) has drive shaft (122) and	drive system (52) has second end (52") which is
	pivotally mounted on the pivot arm (43) of the second support frame (40)	distal end of drive shaft (122) is pivotally connected to crank arm links (124), which are rigidly connected to foot actuator shaft (126)	pivotally connected to bracket (56) which is attached to thigh frame section (46)

44. Claim 10 (which depends from Claim 9) is very similar to the first unique element of Claim 4, except that it concerns the second support frame and does not include a "cushion" requirement. Stroud and Hensley describe the first unique element of Claim 10: when the retractable rod of the drive cylinder is folded outwardly, the pivot arm of the second support frame is pushed upwardly by the retractable rod of the drive cylinder, so that the second support frame is pivoted upwardly relative to the linking frame to lift the lift frame which lifts the second links.

Claim	**'100 Patent element**	**Stroud corresponding element**	**Hensley corresponding element**
10	when the retractable rod (321) of the drive	drive shaft (122) of foot motor (116) extends	drive system (52) may comprise electrical motor

	cylinder (32) is folded outwardly,	toward foot end of bed	and lead screw
	the pivot arm (43) of the second support frame (40) is pushed upwardly by the restractable rod (321) of the drive cylinder (32),	which simultaneously rotates crank arm links (124), foot actuator shaft (126), and foot lift arms (128)	second end (52") of drive system (52) is pivotally connected to bracket (56) which is attached to thigh frame section (46);
	so that the second support frame (40) is pivoted upwardly relative to the linking frame (30)	which results in foot lift rollers (130) pivoting the thigh board (80); and	when thigh frame section (46) is raised by drive system (52),
	to lift the lift frame (50)	the foot board (82) and the foot hinges (70, 72) are lifted	lower leg frame (48) pivots
	which lifts the second links (38)	because the foot support arms (132) are rotated counterclockwise, i.e., upwardly	because of movement of links (70)

45. The requirements of Claim 11 (which depends from Claim 9) are identical to those of Claim 3, except that they apply to the second support frame. Stroud and Hensley describe the first unique element of Claim 11: wherein the pivot arm of the second support frame is substantially V-shaped. Just as the ’100 Patent’s pivot arms 24 and 43 are approximately mirror images to one another, so too are Stroud’s head and foot actuator shafts (100, 126), lift arms (102, 128) and crank arm links (98, 124). Therefore, Stroud’s foot lift arms (128) and crank arm links (124) are substantially V-shaped for the same reasons that the head lift arms (102) and crank arm links (98) were in Claim 3 above. In addition, Figure 5 of Hensley depicts bracket 56 as a tapered member and thus is substantially V-shaped.

	
'100 Patent	**Hensley**

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
11	the pivot arm (43) of the second support frame (40) is substantially V-shaped	foot lift arm (128) and crank arm (124) form a substantially V-shaped obtuse angle about actuator shaft (126)	bracket (56) of thigh frame (46) is substantially V-shaped

46. Claim 12 (which depends from Claim 9) is similar to the tenth element of Claim 1, except that it concerns the lift frame rather than the first support frame. Hensley describes the first unique element of Claim 12: wherein the lift frame has a first portion pivotally mounted on the second portion of the second support frame and a second portion provided with a resting bar rested on the cushion. While Hensley discloses a lift frame pivoting on a second support frame, it does not expressly disclose a "bar rested on the cushion" unless a peculiar definition of "rested on" is adopted. That is, Hensley does not disclose a bar lying on top of a mattress, which is not surprising since such an uncomfortable arrangement would prevent using the bed for sleeping. However, to the extent Claim 12 is interpreted (incorrectly) to mean that the cushion is resting on the resting bar, Hensley discloses frame elements on which a cushion rests – lower leg frame section 48.

Claim	'100 Patent element	Hensley corresponding element

12	the lift frame (50)	lower leg frame section (48)
	has a first portion (51) pivotally mounted on the second portion (42) of the second support frame (40) and	has a first portion pivotally mounted to the thigh frame section (46) (which is the "second portion of the second support frame")
	a second portion [of the lift frame (50)] provided with a resting bar (52) rested on the cushion (60)	and a second portion of the lower leg frame section (48) with a section on which mattress (500) lies

47. Hensley describes the first unique element of Claim 13 (which depends from Claim 12): wherein each of the two second links has a first portion pivotally mounted on the linking frame and a second portion pivotally mounted on the resting bar of the lift frame.

Claim	'100 Patent element	Hensley corresponding element
13	each of the two second links (38)	first and second ends (70' & 70") of links (70)
	has a first portion pivotally mounted on the linking frame (30) and	are pivotally connected to carriage (30) (which is a part of the linking frame) and
	a second portion pivotally mounted on the resting bar (52) of the lift frame (50)	to "resting bar" portion of the lower leg frame section (48)

Claim 14

48. Claim 14 is the second independent claim. The first eight elements of Claim 14 are identical to the first eight elements of Claim 1, and thus track the Claim 1 analysis regarding Stroud and Hensley.

49. Stroud and Hensley describe the ninth element of Claim 14: wherein the linking frame has a first portion provided with a first slide movably mounted on the base frame and a second portion provided with a second slide movably mounted on the base frame.

Claim	'100 Patent element	Stroud corresponding element	Hensley corresponding element
14	the linking frame (30)	upper frame (24) has	the seat frame section (44) and the carriage (30)
	has a first portion provided with a first	side rails (35, 36) and foot and head motor	The "first slide" is the head portion of the carriage (30)

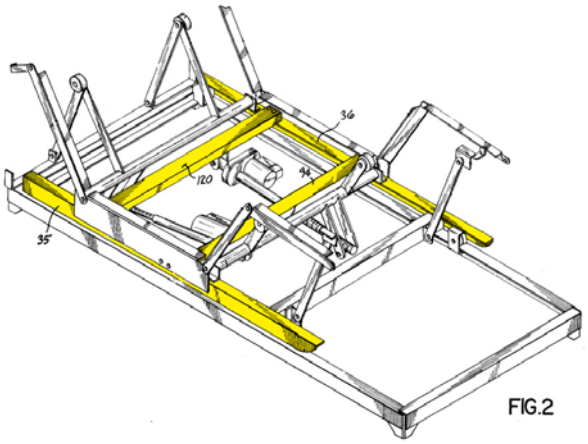
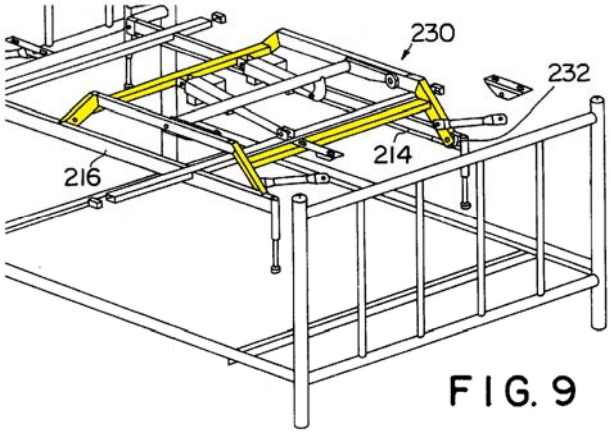
	slide (35) movably mounted on the base frame (10) and	mount rails (94, 120) which are movably mounted on the lower frame (22) by four wheels (37). The "first slide" comprises the head portions of the side rails (35, 36) and the foot motor mount rail (120).	and is mounted on base frame (12) for rectilinear movement with rollers (32) along channels (14, 16) of base frame (12) which serve as guides for rollers (32).
	[the linking frame (30) has] a second portion provided with a second slide (350) movably mounted on the base frame (10)	The "second slide" comprises the foot portions of the side rails (35, 36) and the head motor mount rail (94).	The "second slide" is the foot portion of the carriage (30) and is mounted on base frame (12) for rectilinear movement with rollers (32) along channels (14, 16) of base frame (12) which serve as guides for rollers (32). The two slides are also shown in a different form in Hensley Figure 9 (see Claim 15 below).

Claims Depending from Claim 14

50. Stroud and Hensley describe the first unique element of Claim 15 (which depends from Claim 14): each of the first slide and the second slide of the linking frame is substantially H-shaped.

Claim	**'100 Patent element**	**Stroud corresponding element**	**Hensley corresponding element**
15	each of the first slide (35) and the second slide (350) of the linking frame (30) is substantially H-shaped	See Claim 14 for a description of the first and second slides. The image below shows at least that they are "substantially H-shaped."	As shown in Figure 9, there are transverse strut members (unnumbered) on carriage (230), which is the "linking frame" of Figure 9. Those members form the horizontal portion of the "H" shape and the two shorter longitudinal strut members of the carriage (230) to which the wheels are attached form the vertical

			portions of the “H” shape. See the image below.

	
Stroud	**Hensley**

51. Hensley describes the first unique element of Claim 16 (which depends from Claim 14): wherein the base frame is provided with two opposite guide tracks, and each of the first slide and the second slide of the linking frame is provided with two rollers rotatably mounted in the guide tracks of the base frame respectively so that the linking frame is movable between the guide tracks of the base frame.

Claim	’100 Patent element	Hensley corresponding element
16	the base frame (10) is provided with two opposite guide tracks (11), and	base frame (12) with inwardly facing channels (14, 16) and
	each of the first slide (35) and the second slide (350) of the linking frame (30) is provided with	the “first slide” is the head portion of the carriage (30) and the “second slide” is the foot portion of the carriage (30)
	two rollers (36) rotatably mounted in the guide tracks (11) of the base frame (10) respectively	each is mounted on base frame (12) for rectilinear movement with rollers (32) along channels (14, 16) of base frame (12) to serve as guides for rollers
	so that the linking frame (30) is movable between the guide tracks (11) of the base frame (10)	so that carriage (30) is mounted for rectilinear movement with channels (14, 16) serving as guides or tracks for rollers (32)

52. Hensley describes the first unique element of Claim 17 (which depends from Claim 16): wherein the base frame is provided with two extension brackets each adjustably mounted on the respective guide track.

Claim	'100 Patent element	Hensley corresponding element
17	the base frame (10) is provided with	base frame (112) with
	two extension brackets (13)	corner posts (126)
	each adjustably mounted on the respective guide track (11)	that are vertically-adjustable and are shown as mounted to the longitudinally extending side rails (guide tracks) (114, 116)

Claim 18

53. Claim 18 is the third independent claim. The first eight elements of Claim 18 are identical to the first nine elements of Claim 1, and thus track the Claim 1 analysis regarding Stroud and Hensley.

54. Stroud and Hensley describe the ninth element of Claim 18: wherein each of the two first links has a first portion pivotally mounted on the base frame and a second portion pivotally mounted on the first portion of the cushion.

In Stroud, the equivalent "two first links" are pivotally mounted between the base frame and the head frame. The last clause of Claim 18 of the '100 Patent requires, however, that the first links are mounted "on the first portion of the ***cushion***." This "mounting" is shown in the '100 Patent's figure 6, circled in red below:

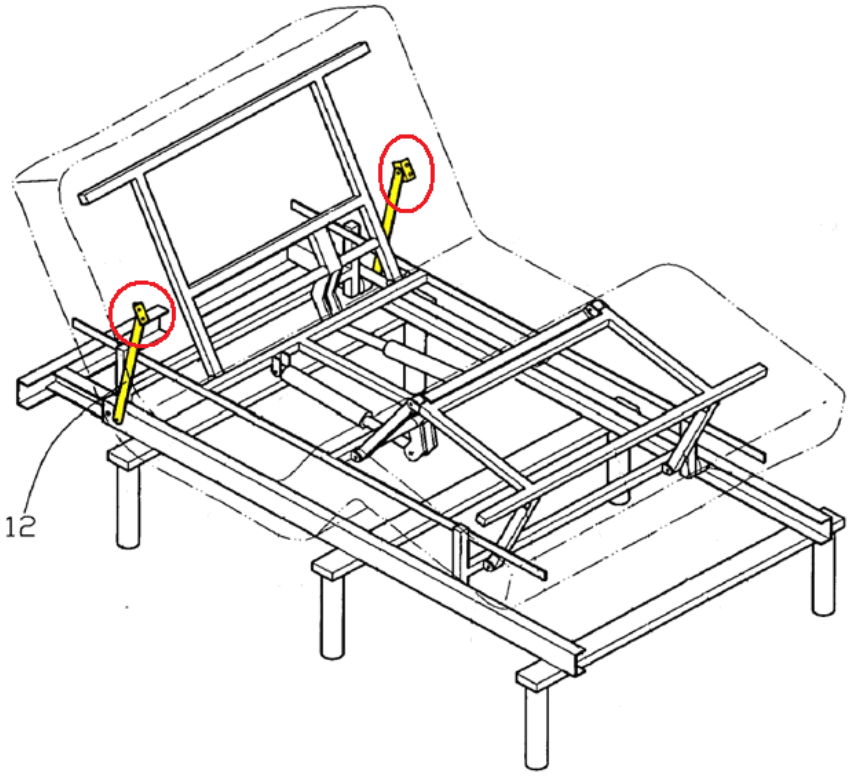


FIG. 6

Such a mounting is impracticable and unworkable. "Pliable mattress cushions" meant for use as sleeping mattresses simply do not have the support in them to attach rigid (likely metal) objects and carry the load of the mattress and the user. Moreover, the fourth element in Claim 1 describes the "two first links" as "pivotally mounted between the [1] base frame and [2] the first support frame." Accordingly, if the two ends of the links are mounted on the "base frame" and the "first support frame," there is no end left to mount on the cushion as Claim 18 requires by its plain language.

Nevertheless, to the extent the Court finds that very indirect "mounting" of the links onto the cushion through other frame parts, etc., meets the limitations of Claim 18, Stroud discloses mounting the links to a "lift roller" that supports the "underside 107 of the head board 76" to the same effect. Likewise, Hensley shows all of the elements of Claim 18 because "[t]he upper body

frame section 42 is connected by links 60 to the head ends of the side rails 14, 16 by pins 60', 60".”[3] Though this “connection” is very indirect with regard to the mattress – the links are connected to a frame section, which supports the boards, which in turn support the mattress – if the Court finds such an arrangement can infringe Claim 18, Hensley and Stroud likewise show all of the elements of Claim 18.

Claim	’100 Patent element	Stroud corresponding element	Hensley corresponding element
18	each of the two first links (12) has a first portion	head arms (104)	links (60)
	pivotally mounted on the base frame (10) and	pivotally connected to head rail (26) and	connect to the longitudinally extending side rails (14, 16) of the base frame (12) and
	a second portion pivotally mounted on the first portion of the cushion (60)	head arms (104) also rotatably connected to lift arms (102) to which lift rollers (106) are rotatably connected and bear against head board (76) over which mattress (86) is laid, such that when the head arms (104) pivot they do so in relation to the mattress (86)	to upper body frame section (42), which is part of articulating upper frame (40) on which mattress (500) lays

CONCLUSION

55. For the reasons set forth in detail above, each and every element of Claims 1 and 5-18 of the ’100 Patent is described in Hensley. Similarly, each and every element of Claims 1-11, 14, 15 and 18 of the ’100 Patent is described in Stroud. All of the elements of the 18 claims of the ’100 Patent are described in the prior art, in particular in Stroud and/or Hensley.

[3] Hensley at 4:21-22.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 7, 2010 

Jeffrey L. Stein

CERTIFICATE OF SERVICE

I certify that this document is being filed through the Court's electronic filing system, which serves counsel for other parties who are registered participants as identified on the Notice of Electronic Filing (NEF). Any counsel for other parties who are not registered participants are being served by first class mail on the date of electronic filing.

/s/ Michael A. Albert